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(54) Title: DOWNLOAD MANAGER
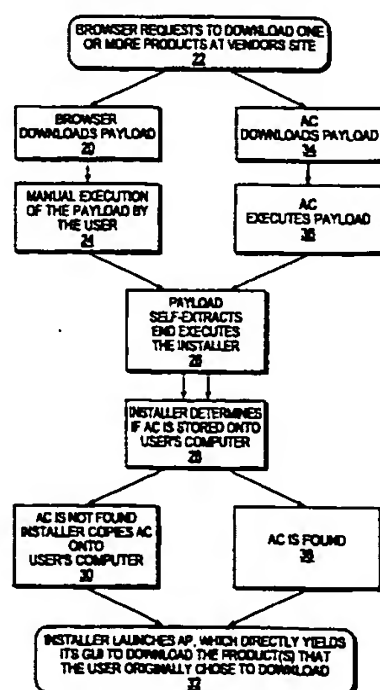
(57) Abstract: In response to a request to download a product, a vendor sends a payload containing an installer, a download application (AP) containing the location of the requested product at a server, and a simplified version of the download application (AC). When the user executes the payload it launches the installer which checks whether or not a copy of AC exists on the user's computer. Should the user's browser support Active X Controls, the user is served a slight variation of the invention avoids this one-time manual execution of the payload. If AC is not found by the installer, a copy of AC is stored onto the computer. The installer then launches the AP application. The AP download application is of such a design that after its execution, no other steps are required by the user to view its graphical user interface (GUI). The user then may instruct AP, via its GUI, to initiate the download of the product, or the initiation of the download may be performed automatically. Subsequently, when such a user requests to download a product from a vendor that has installed the present invention, again the vendor sends the payload. The user's browser delegates the downloading and execution of the payload to AC, which has previously been stored on the user's computer. Once executed, the payload directly yields the GUI of AP without requiring any steps by the user as before, who may then instruct AP to initiate the download, or the initiation may be performed automatically.

DOWNLOAD MANAGER

RELATED APPLICATION

This application is related to and claims priority from Provisional Application,
5   Serial No. 60/148,248, filed on August 11, 1999, and entitled "DOWNLOAD
MANAGER."

This application is also closely related to commonly assigned U.S. Patent No.
_____.

10   ## BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a system to download files to one or more com-
puter systems. More particularly, the present invention relates to the automatic down-
loading and execution of systems that perform the downloading of such files.

15

Background Information

The Internet is an inherently fragile environment in which to conduct com-
merce. It has become especially critical and necessary to provide an optimal user-
friendly experience for first time users. After all, the competition is a mere 'click
20   away.' In particular, on-line delivery of software products, and other large files, using a
browser is often a tedious and frustrating task. Therefore, non-browser downloading
methods have become important for vendors involved in Internet commerce. Current
non-browser download systems come in two varieties: A) download managers, and B)
micro-clients.

25   Download managers present obstacles for first time users. These limitations in-
clude: 1) Before a user may use a download manager system, he/she must first sepa-
rately select to download it. 2) After downloading the manager, but before using it, the

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user is then obliged to manually install the manager. 3) In some cases, the user's browser and system must be configured correctly, also making sure that he/she has installed the correct plug-ins, etc. 4) If the system is ever deleted, or becomes disabled, or out-dated, the user is obliged to start over with step 1 again. Thus, first time users do not enjoy a seamless experience; lessening the likelihood they will return to the vendor to engage in repeat business. These limitations do not provide an optimal user-friendly experience for first time users, thus they do not provide an effective efficient non-browser based delivery solution for the vendor. Such systems automatically launch for any widely available file extensions, not just for a special proprietary file extension.

In addition, after installation of the manager, users may then subsequently utilize it at any vendor's site, who may not be a client of the manufacturer of the download manager. These vendors (and users) nonetheless benefit from the usage of the manufacturer download manager. Such use diminishes the market for the manufacturer.

Micro-client systems are miniature "download managers" that reside on a user's computer only for the duration of downloading a limited number of products, after which, the micro-client deletes from the user's computer. Although micro-client systems do not have limitations 1-4 above, they also do not evoke automatically when the user's browser attempts to download software products. Rather, each time the user downloads a product; the requesting users are sent another micro-client that they must manually launch. Therefore, the micro-client systems also do not provide a seamless unobtrusive download process for first time users, let alone experienced users.

SUMMARY OF THE INVENTION

The present invention provides a seamless, user-friendly, non-browser on-line download delivery system that addresses the above-discussed limitations. First time users, after requesting a download from a vendor, are required to perform a single one-time manual operation. This operation is merely to execute an application (the payload, see below) by double clicking on its icon. Thereafter, these users enjoy a completely automatic download process that does not oblige them to perform any manual opera-

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tions, after requesting to download product(s), to view the GUI of the download application and initiate the download(s) of the product(s) they requested.

First time users, who desire to download product(s) from a vendor, typically send a request for the downloading via their browser. In response to the request, vendors--who employ the present invention--send a small set of application programs, herein referred to as the payload. The payload contains at least a download application (AP) together with other programs discussed below. The first time user is required to manually execute the payload, which presents the graphical user interface (GUI) of the download application to the user. The user may then instruct the GUI to download the originally requested product(s), or alternatively the application may be configured to automatically initiate the download(s) as discussed below. Therefore, with the present invention, after clicking a download link to request the downloading of product(s), only a one-time manual step is required for first time users to view the GUI of the download application and to initiate the download(s) of requested product(s).

The payload also contains, aside from the download application, in a preferred embodiment, an installer and an abbreviated download application (AC) that is stored on the user's system and referenced to the user's browser in such a way that when the browser requests to download a file from a vendor, and receives the payload in return, the browser delegates the downloading and launching of the payload to AC. Thus, the AC program, as discussed below, provides a means for eliminating the single manual operation after a first downloading, and therefore allows subsequent browser download requests to automatically invoke and launch the download application.

Subsequent browser requests, to download a product(s) from a vendor, who employs the present invention, results in the immediate launch of the download application's GUI. The user may then instruct the GUI to download the originally requested product(s), or the download(s) may start automatically (again, see below). Thus, experienced users (those users who have already downloaded the payload once), are not required to perform any manual steps—after requesting to download product(s) via the browser—to view the download application's GUI and initiate the download(s) of the requested product(s).

Therefore, only the users of a vendor, which installs the invention, and is therefore a client of the manufacturer of AP, will be able to utilize the system. Thereafter,

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these users will not be able to use the system at a vendor who is not a client of the manufacturer.

If, after a first download of the payload, the AC program become non-functional or is deleted, the user need only repeat the process described above for first time downloading, which entails the single manual operation by the user.

Because all requests for downloads are served the payload, irrespective of whether or not they are first time users, the vendor has the advantage that there is no need to handle first time users any differently than experienced users.

The present invention allows the vendor to easily and seamlessly upgrade the AP application without usabilility issues. This is because the AP application resides on the user's computer only for the duration of the download of the requested products, after which it self deletes, and because each user that requests a download is sent a payload. Thus when the vendor wants to up-grade the download application (AP), the old AP in the payload file stored on the vendor's server simply must be replaced by the new AP. Then all users downloading from the site will automatically and invisibly receive the new AP, and there are no users utilizing the old AP application. Because of the advantages of the present invention, different vendors may utilize different versions of AP without any usability issues for users.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention description below refers to the accompanying drawings, of which:

Fig. 1 is a block diagram of the payload's contents.

Fig. 2 is a block flow diagram of a browser request to download two products where a payload is instead downloaded which has the two product's URLs within it.

Fig. 3 is a block flow diagram of a sequence of the present invention.

Fig. 4 is a flow block diagram of an alternative method to that shown in Fig. 2.

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DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT

With reference to Fig. 1, the payload 2 is a self-extracting and automatically executing program (e.g. wwpack32) that links and wraps: 1) a download application
5   (AP) 4 which functions to download files; 2) an installer 6; and 3) an application (AC) 8 that downloads and/or launches a payload.

In the following discussion, AP is a download application of any type that does not require any manual steps by the user for its installation, thus, upon its first execution by a user it immediately yields its GUI. An example of this type of program is
10   EthosPath (trademark of Ethos Technology). It is further desirable for such an application to also require no manual steps, after its execution, to initiate the downloading of requested files.

First time users: the first download of the payload

15   With reference to Fig. 2, a user via his browser initiates a download 12 of three products 18 from a vendor's site 16. It is explicitly stated there that 'products' may be software programs, or non-executable data such as graphic files, documents, music files, etc. In this case the vendor is employing the present invention, and in response to the download request the vendor's server returns the payload of Fig. 1. That payload
20   contains, among other things as referenced above, the URL (universal resource locator) of each of the three products at a server. In other instances, the delivery of the payload may be performed via email, a download, or by physical distribution on a readable medium such as a compact disk (CD) or floppy disk.

Fig. 3 shows the sequence implementing the transfers of Fig. 2 for a first time
25   user and an experienced user. The payload downloaded 20 in response to the user's first request 22 is manually executed 24 by the user. This manual execution is a simply process, merely being a double click of the mouse on the payload's desktop icon. Once executed, the payload launches or executes 26 the installer. The installer searches 28 the memory of the user's computer system for a copy of the AC program. Thus, since
30   this is the user's first download of the payload, the AC is not found, and the installer

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stores 30 a copy of the AC program from the payload to a location within the disk space. Next the installer launches the AP program from the payload, which directly presents 32 its graphical users interface (GUI) to the user.

The user then instructs AP to initiate the download the three products that he/she originally requested. Alternatively, the AP program may be configured in such a way that after its execution, without further user interaction, it will automatically initiate the downloading of the three programs 18 selected. This is discussed more fully below. Upon completion of all three downloads, AP may be configured to self-delete.

Enabled users: subsequent downloads of payload

Still referencing Fig. 3, if, at some later time, the user again attempts to download products from a vendor who employs the present invention--the process this time will not include the manual step 24 of launching the payload.

Consider, for example, the user clicks to download two products 22 from a vendor who has installed the present invention. In this case, because the user has already previously downloaded a copy of the payload (therefore has a copy of AC on the user's system), the user's browser will recognize (by it's unique and identifying attributes) that the AC program 34 is installed in the user's system and transfer the tasks of downloading and launching the payload to the AC program. This may be accomplished by a variety of methods such as DE and COMM, which are well known commands that all browsers support. The AC program then downloads the payload, verifies that it indeed is the payload, and executes the payload 36. This verification is necessary to ensure that AC is indeed launching the payload, and not another application posing as such. As described above, the payload contains the AP program that contains the location of each of the two products on the server. Once executed, the payload container launches 26 the installer, which of course finds AC 38 already installed onto the user's computer. Next the installer launches AP 32. As stated previously, this directly yields its GUI to the user. Finally, the user instructs AP to initiate the download the two chosen files, or alternatively, the downloads may be initiated automatically as discussed previously. On completion of the downloads, AP may self-delete.

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If AC is deleted or becomes non-functional

If the AC file is deleted, or becomes non-functional, and if the user attempts to download from a vendor who has installed the present invention, the user will simply repeat those steps as described in 'First time users: the first download of the payload,'

5 and shown in Fig. 3

Allowing for automatic execution of AP even on the first download of the payload

10 With reference to Fig. 4, to allow for the automatic execution of AP, regardless of the download being the first or later download requests from a user, the vendor performs the following changes to the above methods. The payload 40 is modified (herein 'payload*') by deleting the installer and the AC program to contain only the AP program. When the user's browser views the download links of the vendor, these links will

15 either point to the payload or payload* depending on whether or not the browser is configured to download and execute Active X Controls (or the analogous plug-ins for Netscape). In the later case, should the user click to download a product(s), the vendor's server responds by sending an Active X control, herein ACX 40. The ACX, similar to AC, downloads, verifies, and executes the payload*. If the user's browser does not

20 support Active X Controls, the download links 42 serve the original payload to the user, as in Fig. 2.

Should the browser support the use of Active X controls, the browser will then automatically download ACX without prompting the user for a location for it to be saved. The browser then automatically executes ACX. These last two properties are

25 those of Active X Controls. ACX then functions to download the payload* which has contained within it AP including the desired product(s) URL(s). Upon completion of the download, payload* is executed by ACX. The payload then executes AP, which directly presents its interface to the user as in the above methods. If later the user disallows the browser's support of Active X controls, when attempting to download again

30 from a vendor who has installed the present invention, the user's browser will not show

the links for ACX but rather the links for the payload as in Fig. 2. In this case, the user will simply use the original method described above.

What is claimed is:

CLAIMS

1   1.   The process of download products, comprising the steps of:

2   sending a request for the download of at least one product storing the location of

3   the at least one product at a server, within the download application, in response to the

4   request, receiving a payload that contains a download application and at least one other

5   executable program, after the download of the payload,

6   executing the payload where execution of the payload immediately presents its

7   graphical user interface to the user, upon execution of the payload, determining whether

8   or not the user's computer contains a copy of an application which functions to auto-

9   matically download and execute the download application.

1   2.   The process of claim 1 further comprising the steps of: if the application

2   is not found on the user's computer, storing a copy of the application onto the user's

3   computer.

1   3.   The process of downloading products, comprising the steps of:

2   sending a request, by one application on the user's computer, to download one

3   or more products, the first requesting application delegates another application on the

4   user's computer to automatically download and execute the payload which is sent in

5   response to the request for the at least one product, where execution of the payload im-

6   mediately presents its graphical user interface to the user.

1   4.   The process of claim 3 further comprising the steps of: in response to the

2   receiving the request for the download of the at least one product, storing the location

3   of the at least one product at a server, within the download application, before the pay-

4   load is sent to the user.

1   5.   The process of downloading products, comprising the steps of:

2   sending a request to download one or more products, in response to the request,

3   receiving a payload which contains a download application, and in response to

4   detecting the incoming payload, delegating to another application on the user's com-

5   puter to automatically execute the payload which directly yields the graphical user in-
6   terface of the download application.

1   6.   The process of claim 5 further comprising the steps of: in response to the
2   receiving the request for the download of the at least one product, storing the location
3   of the at least one product at a server, within the download application, before the pay-
4   load is sent to the user.

1   7.   The system for downloading software products, comprising:
2   means for sending a request to download at least one product, in response to the
3   request,
4   means for receiving a payload that contains a download application and at least
5   one other executable program,
6   means for executing the payload, and
7   means for yielding the graphical user interface of the download application.

1   8.   The system as defined in claim 7 further comprising:
2   in response to receiving the request for the download of the product, means for
3   storing the location of the product on a server, within the download application, before
4   the payload is sent to the user.

1   9.   The system as defined in claim 7 further comprising:
2   after execution of the payload, means for determining whether or not the user's
3   computer contains a copy of an application which functions to automatically download
4   and execute the download application.

1   10.   The system as defined in claim 9 further comprising: if the application is
2   not found on the user's computer, means for storing a copy of the application onto the
3   user's computer.

1   11.   The system for downloading software products, comprising:
2   means for sending a request to download one or more products, in response to
3   the request, means for receiving a payload which contains a download application, and
4   in response to receiving the incoming payload, a browser for delegating to another ap-

5 plication on the user's computer to automatically execute the payload which directly

6 yields the graphical user interface of the download application.

1 12. The system as defined in claim 11 further comprising: in response to the

2 receiving the request for the download of the product, means for storing the location of

3 the product at a server, within the download application, before the payload is sent to

4 the user

1 13. The process for downloading programs comprising the steps of:

2 a user requesting a download of at least one product,

3 defining a locator for the at least one product,

4 in response to the requesting, sending a download application containing the locator,

5 and wherein the download application defines a graphical user interface, and

6 presenting the graphical user interface with a reference to the located product.

1 14. The process as defined in claim 13 further comprising the steps of:

2 executing the received download application, wherein the located product is

3 downloaded to the user.

1 15. The process as defined in claim 14, wherein the download application is

2 sent as a file with at least one other program that is self executing and which then exe-

3 cutes the download application wherein the located at least one product is downloaded.

1 16. The process as defined in claim 15 further comprising the steps of: if

2 the self executing application is not found on the user's computer, storing a copy of the

3 self executing application onto the user's computer.

1 17. The process as defined in claim 13 wherein the locator is the URLs of

2 the at least one product.

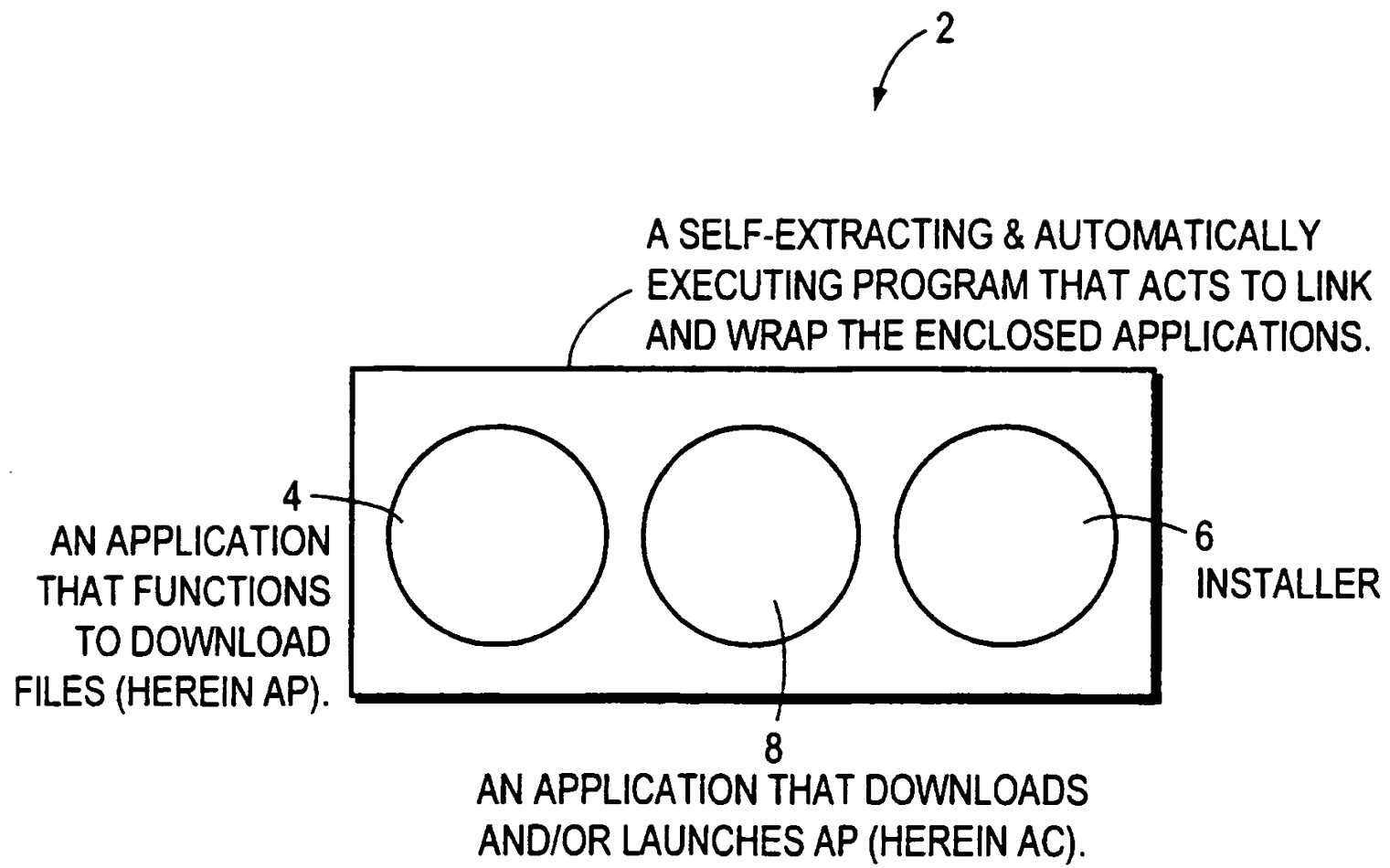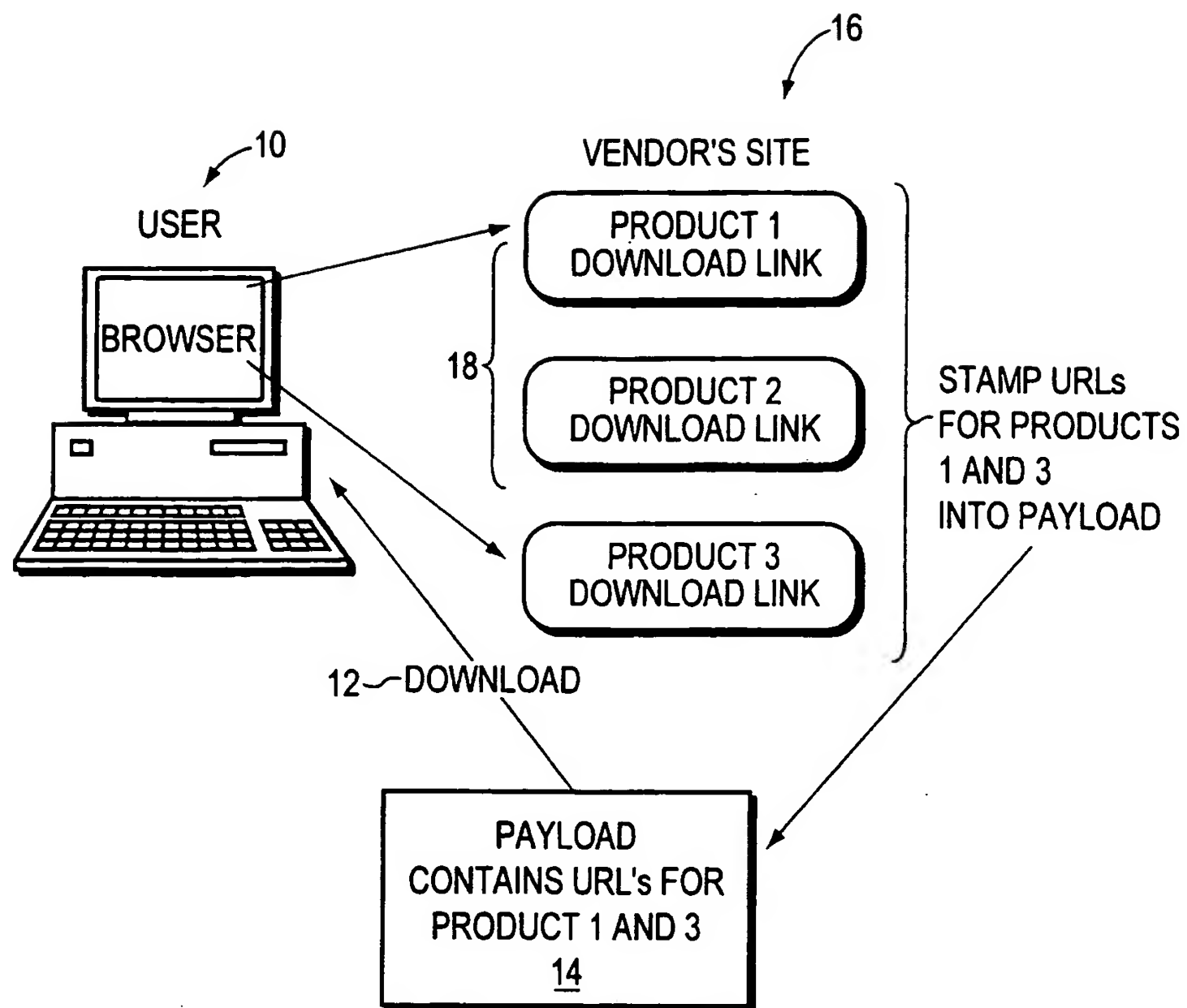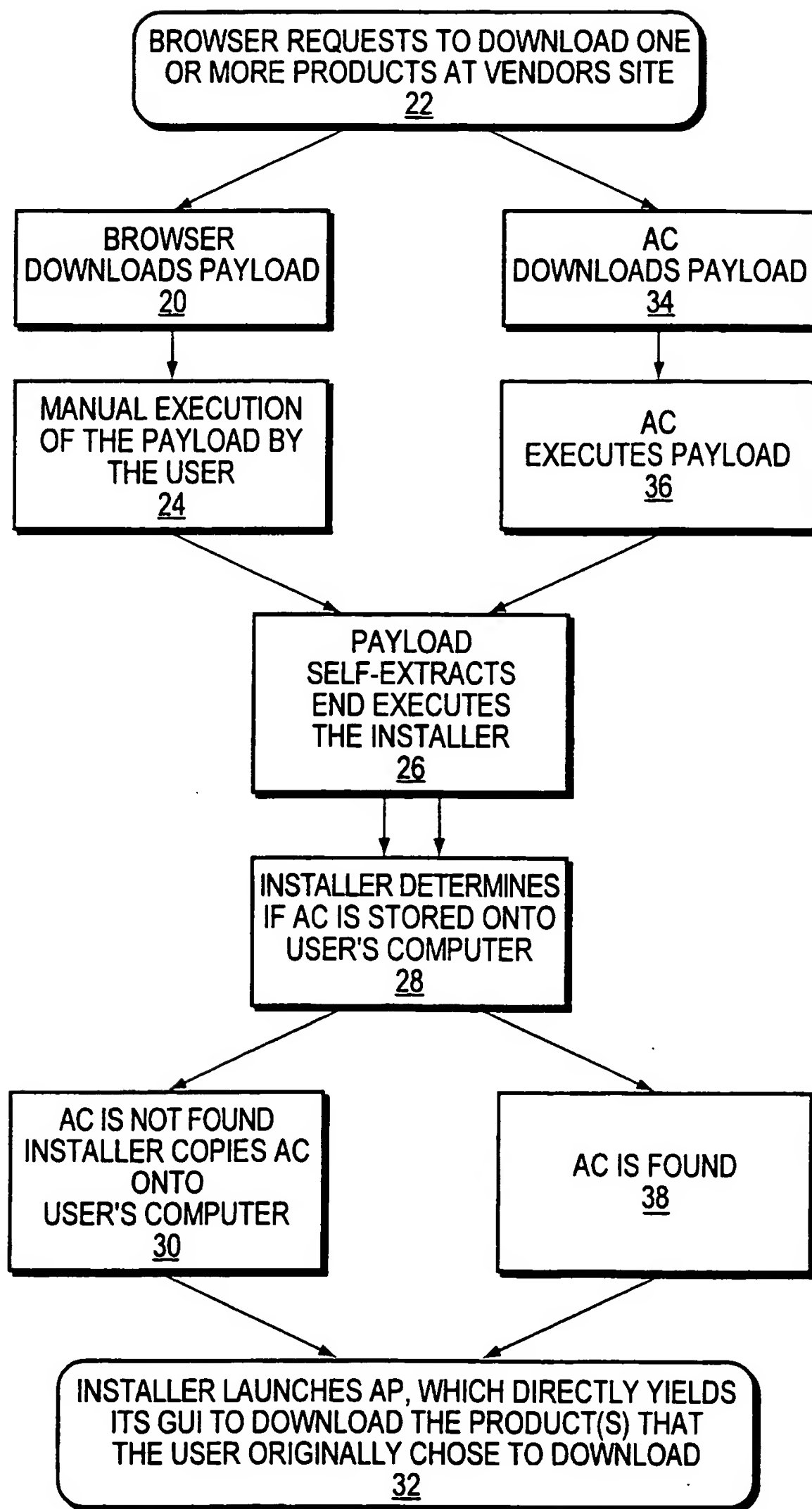A SELF-EXTRACTING & AUTOMATICALLY EXECUTING PROGRAM THAT ACTS TO LINK AND WRAP THE ENCLOSED APPLICATIONS.

4

AN APPLICATION THAT FUNCTIONS TO DOWNLOAD FILES (HEREIN AP).

6

INSTALLER

8

AN APPLICATION THAT DOWNLOADS AND/OR LAUNCHES AP (HEREIN AC).

2

FIG. 1

FIG. 2

BROWSER REQUESTS TO DOWNLOAD ONE
OR MORE PRODUCTS AT VENDORS SITE
<u>22</u>

BROWSER
DOWNLOADS PAYLOAD
<u>20</u>

AC
DOWNLOADS PAYLOAD
<u>34</u>

MANUAL EXECUTION
OF THE PAYLOAD BY
THE USER
<u>24</u>

AC
EXECUTES PAYLOAD
<u>36</u>

PAYLOAD
SELF-EXTRACTS
END EXECUTES
THE INSTALLER
<u>26</u>

INSTALLER DETERMINES
IF AC IS STORED ONTO
USER'S COMPUTER
<u>28</u>

AC IS NOT FOUND
INSTALLER COPIES AC
ONTO
USER'S COMPUTER
<u>30</u>

AC IS FOUND
<u>38</u>

INSTALLER LAUNCHES AP, WHICH DIRECTLY YIELDS
ITS GUI TO DOWNLOAD THE PRODUCT(S) THAT
THE USER ORIGINALLY CHOSE TO DOWNLOAD
<u>32</u>

FIG. 3

VENDOR'S SITE

42

USER

BROWSER
SUPPORTS
ACTIVEX
CONTROLS

PRODUCT DOWNLOAD LINKS
POINTING TO PAYLOADS ARE HIDDEN

PRODUCT DOWNLOAD LINKS
POINTING TO PAYLOAD* ARE VISIBLE

44

DOWNLOAD

ACX
CONTAINS URL's
TO DOWNLOAD
PAYLOAD*

PAYLOAD

40

FIG. 4